

## NEST DESERTION BY BLACKBIRDS FOLLOWING DEFOLIATION OF AN ASH TREE BY SAWFLY LARVAE

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In late May 1993, a pair of blackbirds *Turdus merula* L. built a nest, at a height of about 7 m, in an ash tree *Fraxinus excelsior* L. (Angiospermae: Oleaceae) in an urban garden at the rear of a block of flats in Tooting, south-west London. When nearing completion, the nest was almost invisible amongst the foliage. However, as had occurred during the early summer of 1992, the tree was attacked by innumerable sawfly larvae (Insecta: Hymenoptera), which proceeded to defoliate the tree from the ground upwards.

Although it was not possible to rear the larvae to adults, many were collected in 70% ethanol. With the aid of a key to larvae (Lorenz & Kraus, 1957) and comparisons with material in the Natural History Museum (NHM), London, they were identified as *Tomostethus nigrinus* (Fab.) (Hymenoptera: Tenthredinidae, Blennocampinae). Specimens and photographs of the larvae and the affected tree have been deposited at the NHM.

At first, both sexes of the blackbirds benefited from feeding on the larvae but, soon, they were overwhelmed and, by 4th June, the pair was defending a nest wholly exposed in an almost bare tree. Nevertheless, the female persevered and at 18.30 hours was sitting in the nest, presumably on eggs, but this could not be confirmed. At 09.30 on the following day the female was again sitting tight. At 10.50 the male was feeding on the larvae at the top of the tree and at 10.55 the female was observed pecking at larvae, whilst still in the nest. She then left the nest to feed in the bare branches before returning, activities repeated throughout the day, and was last seen on the nest at 17.00 that evening. The following day both birds were feeding in the tree and, at 13.15, the female inspected the nest but did not sit in it. The female was again present in the tree at 13.00 on 7 June but, thereafter, the site was abandoned. The birds appeared to have given up their nesting attempt, perhaps for fear of predation (principally by domestic cats) in their exposed position, but it was also possible that the nest had been visited by renowned egg thieves, such as jays *Garrulus glandarius* (L.), magpies *Pica pica* (L.) or carrion crows *Corvus corone* L., (all Passeriformes: Corvidae), all of which are common in the area. In 1997, the tree was felled, preventing further investigation.

*T. nigrinus* belongs in a small genus of Holarctic sawflies of about 12 species, placed in the tribe Tomostethini of the Blennocampinae (Benson, 1952), with their main region of diversity in eastern Asia (Smith, 1969). British species are keyed in Benson (1952) and those from the Nearctic in Smith (1969). *T. nigrinus* has a wide distribution throughout the Palaearctic, occurring from the British Isles (Eire and Northern Ireland excepted) (O'Connor *et al.*, 1997) in the west, to eastern Siberia, Kamchatka, Sakhalin, Korea and Japan (Honshu) in the east; and from Sweden and Finland in the north to North Africa and Turkey in the south (Tsinovskij, 1953; Benson, 1968; Novák, 1976; Zhelokhovtsev, 1988; Hirashima, 1989; Liston, 1995; Zhelokhovtsev & Zinovjev, 1997).

The known larvae of *Tomostethus* are associated with Oleaceae and Juglandaceae (Benson, 1952); those of *T. nigritus* have been recorded from *F. excelsior* L. (Benson, 1952) and from *F. mandschurica* Rupr. var. *japonica* Maxim, in northern Japan (Okutani, 1967), both species belonging to section *Fraxinus* sensu Vassilijev (Vassilijev, 1952, as 'sect. *Bumelioides*'). Zirngiebl's suggestion (cited in Hoop, 1983) that the larvae may feed on *Ligustrum* L. is unconfirmed. The distribution of *T. nigritus* considerably exceeds the natural range of these two species, but seems to fall within the present range of sect. *Fraxinus* as a whole, allowing for timber plantings beyond the natural range in Russia (L. Springate, *pers. comm.*), suggesting exploitation of a wider range of hosts but only within that section.

*T. nigritus* is univoltine, with adults active between April and June, often alighting on opening buds of ash (Benson, 1940, 1952). Eggs are laid in small, pocket-like, openings on the newly-developing leaves (Novák, 1976). Larvae are gregarious and early instars may be found from May to June (Lorenz & Kraus, 1957). These perforate the leaves and feed, leaving only a small area between the veins; later instar and mature larvae consume the entire leaf, apart from the mid-rib (Novák, 1976). Thus, its pattern of damage to leaves appears to be quite different from that of another defoliator of *Fraxinus* spp., *Macrophya punctualbum* (L.) (Tenthredinidae: Tenthredininae) which is characterised by 'rasping' marks on the leaf's upper epidermis caused by the adult insect, and circular holes made by the larvae, when it attacks *Ligustrum ovalifolium* Hassk. (cited as *L. californicum* hort. ex Decn.), the common hedging privet, a native of Japan (Wheeler & Hoebeke, 1994). *T. nigritus* was, however, classified as a leaf-edge feeder in a recent study on the feeding activity of some European sawflies (Heitland & Pschorn-Walcher, 1993), but the reason for this placement is unclear. Four and five larval instars are recorded for the males and females, respectively (Mrkva, 1965; Novák, 1976). Mature larvae drop from the ash trees, spin a light green pupal case (darkening to black, subsequently) and overwinter in the soil, emerging the following spring. Adults and larva are illustrated and other aspects of the species' biology, including its behaviour and range of parasitoids, are discussed in detail by Mrkva (1965).

*T. nigritus* is renowned as a species which may occur as an outbreak, for example, at Shirley, near Southampton, Hampshire during 1937 (Benson, 1952). The destructive defoliation by its larvae has been known for more than a century (Kaltenbach, 1874) and, in many parts of its range, it was and is considered a serious pest, for example, in western Europe (Escherich, 1941; Francke-Grosmann, 1953; Klausnitzer, 1978), southern Russia (Sharov, 1956), Sakhalin and Korea (Novák, 1976). However, its outbreaks appear to be sporadic rather than regular, as are those of the related Nearctic species, *T. multicornis* (Röhner), which was considered to have become a light-to-medium outbreak only thrice during 59 years in the states of Minnesota and Wisconsin (Haack & Mattson, 1993).

Although sawflies and other herbivorous insects can defoliate trees to the point of destruction (e.g., Berryman, 1987; Gauld & Bolton, 1988; Larsson *et al.*, 1993), it is unlikely that the defoliation *per se* enforced desertion by the nesting pair of blackbirds. No accounts of other birds abandoning their nests after having had them so completely exposed to predators and egg-thieves, following the actions of insect herbivores, have been traced. Given the widespread distributions of both *T. nigritus* and its hosts within *Fraxinus* noted above, it is surprising that such events have not been recorded, even more so when sawfly, tree and nesting bird are common in urban environments. However, it is possible that birds nesting in the upper crowns of coniferous trees may encounter similar defoliations by other species of gregarious sawflies (e.g., species of Pamphiliidae and Diprionidae) and Lepidoptera.

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## SHORT COMMUNICATION

**Observations of some uncommon Dung Beetles**—*Geotrupes pyraeus* (Charpentier) (Geotrupidae) (Na) is locally abundant on Thursley NNR, Surrey (SU94), where it is regularly found near dog and horse dung along the bridleways and paths in late May and June. In 1998 a second emergence occurred in late August, when adults were again active and abundant on the 27th, and many dead and moribund individuals were picked up by Wendy Denton and Julia Fry on the 30th. This is the first time I have encountered this species in late summer, despite monthly visits to Thursley for over 10 years. It is intriguing that this should happen in a relatively poor summer, and not in any of the long series of warmer ones over the study period. A single specimen was picked up dead in the New Forest in August (Roger Booth, *pers. comm.*).

*Aphodius porcus* (Fab.) (Scarabaeidae) (Nb): I found a single female at Cholderton, N. Hants (SU2442) on 1.x.98. I excavated a *Geotrupes* burrow (probably made by *G. spiniger* (Marsham)) in an improved pasture field. The burrow went down at an angle of c.30° to a plug of moulded cow dung the size of a golf ball which was placed on the interface of the loose soil and hard chalk bedrock at c. 30 cm. On opening this dung I found a small round, pea-sized cavity in which was found the female *A. porcus* and the remains of a *Geotrupes* larva. This species has been reported as being a cuckoo parasite of *Geotrupes stercorarius* (L.) (Chapman, 1869, *Entomologist's Monthly Magazine*, **5**: 273–6), and may also overwinter in the burrows. *Geotrupes spiniger* was exceedingly abundant on the Cholderton Estate, with adults under most large dung pats, and a female *G. mutator* (Marsham) (Nb) was also found under 'sloppy' sheep dung.

Fox (*Vulpes*) and Little Owl (*Athene noctua*) pellets in the vicinity appeared to be made up almost entirely of the remains of *Geotrupes* adults.

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